



Revision number:

Purchasing Agent: Debbie Gundersen

**Item: SNOW PLOWS 12 LONG STRAIGHT BLADE**

Vendor: 91491C A Express Truck Equipment  
2305 South 5520 West  
West Valley City UT 84120-5730

Internet Homepage:

Telephone: (801) 886-4900

Fax number:

Contact: Richard Heinze

Email address:

Brand/trade name: Henderson SnowFoe

Price:	See Attached Price List
Terms:	Net 30
Effective dates:	10/1/98 through 10/1/99
Days required for delivery:	75 Days After Pilot
Price guarantee period:	9 Months
Minimum order:	One
Min shipment without charges:	
Other conditions:	

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**THIS IS A NEW CONTRACT.**

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This contract covers only those items listed in the price schedule. It is the responsibility of the agency to ensure that other items purchased are invoiced separately. State agencies will place orders directly with the vendor (creating a PG in Finet) and make payments for the same on a PV referencing the original PG. Agencies will return to the vendor any invoice which reflects incorrect pricing.

Snow plow 12 foot long, power reversing, straight blade, Hendersen Snow Foe delivered.

\$3412.00

## Specifications

<b>Moldboard</b>	<p>To be 3/16" thick and 41 inches high approximately, with 6" cutting edges attached. To be smooth formed with integral extension similar to moldboard contour as shown on the attached drawing. (1 of 8). Moldboard not to be press broken.</p> <p>To have ½ inch thick by 12 inch wide, 4 cord minimum rubber belting shield. Rubber shield is to be bolted to moldboard in approximately a 45 degree position, with reinforcement bar across the front for strength. Bars strong enough not to bend in normal operation of plow. This will be reviewed with a paper pilot review prior to manufacturing pilot plow for approval by Utah Department of Transportation and approved at paper pilot.</p> <p>To have 6 minimum, one piece ribs, each will be approximately 4 inches wide at the bottom and taper to 2-1/2 inches at the top by ½ inch thick as a minimum. Ribs to be one piece (no weld joints) and run from top to bottom of moldboard. Ribs to have continuous weld on both sides, to moldboard. To have at least 3 horizontal stiffeners, running the full length of moldboard and spaced at an equal distance from bottom edge of plow and the top edge. Stiffeners to be 2 inch x 2 inch x 3/8 inch minimum angle, with angle legs welded continuously to moldboard and ribs.</p> <p>Using a "Z Design" as shown in drawing (1 of 8) attach bottom angle to moldboard. Angle is to be 4 inch x 4 inch material. Both flange edges of angle to be welded continuously to back side of moldboard. Attach a ½ inch x 4 inch flat bar under the angle on moldboard with continuous welds. Gussets are to be welded to bottom side of angle, and to the flat bar every 12 to 18 inches.</p>
<b>Cutting Edges</b>	<p>To have double cutting edges installed.</p> <p>First edge to have tungsten carbide inserts.</p> <p>Second edge to be bolted in front of carbide insert edge.</p>
<b>Safety Trip</b>	<p>To have two single or one double heavy compression spring trip.</p> <p>Spring will have provisions for adjustment of cutting angle, that includes 12 degrees to 24 degrees back from vertical. Springs to have strength to hold plow at position within 1° from adjusted setting when full weight of plow is on edges and pushed forward. To have rubber stops to stop the plow from full tripping.</p>
<b>Push Beam</b>	<p>Push beam to be 4 inch x 4 inch x 3/8 inch minimum, square tube, to be long enough to fasten to at least four each of the vertical ribs, The beam shall be attached to the moldboard at a minimum of 4 places, two of which are at the ends of the beam. These attachments shall be made on the ribs of the moldboard. Ribs to be reinforced at attached points. No holes in square tubing for any mounting purposes.</p> <p>Build up attachment points of the push beam to moldboard, and trip springs to moldboard, such that, the vertical ribs are 1 inch thick around drilled holes. Extra plates required are welded on three sides solid welds, the top is not to be welded but caulked before painting.</p>
<b>Reversing Frame</b>	<p>Frame and reversing circle to be constructed of 3-½ inch x 3-½ inch x 3/4 inch minimum, angle or formed plate.</p>
<b>Lift Hardware</b>	<p>Plow lift to be a level lift of plow manufacture design.</p> <p>To have 3/4 inch bolt through 2 center ribs, or a 3/4 inch clevis, if there is only one rib in the center, (6 inches to 8 inches from top of plow) for handling plow during repair work.</p>

- Reversing Cylinders** To have two, double acting, 4 inch bore x 10 inch stroke with Cap "T" seals, 2 inch diameter chrome plated rod, with ½ inch ports required with 45 degree pipe swivels on both ends of cylinder. No hole allowed in shaft for mounting purposes. The size and capacity to be proven adequate, for the design of the reversing hardware bid.
- Hydraulics** Hoses to be located above frame and clamped to protect from damage. Connecting hoses to be ½ inch number 8 SAE 100R2 with Parker FF-501-8FP quick coupler for right angle and Parker FF-502-8FP quick coupler, for left angle. Quick couplers to have dust caps. Hose to be routed to right side of frame. Hose to reach to a point 36 inches beyond the right attaching ear. Cross over relief valve to be a Gresen 3100 F with ½ inch ports at 20 gpm and mounted as not to interfere with operation of the plow.
- Cylinders** Cylinders to be arranged so that there is access to top and bottom of both pins, so that a cylinder can be easily replaced in the field by pulling pins, without any disassembly of reversing frame and without removing the plow from the truck. Cylinders to be mounted below turntable.
- Running Gear** No shoes or wheels required. To have adjustable parking jack near center of circle frame, to allow for the easy mounting of plow to truck. Jacks will be removed and stored in truck during operation of plow.
- Plow Angle** Frame and cylinders shall provide plow angle of approximately 40° degrees each side of center. There shall be stops on the turning circle, welded sufficiently to hold plow at the 40° degree angle and to keep cylinders from bottoming. When cylinder fully angled, cylinder stroke limited to ½ inch less than full stroke.
- Weight** Weight of the complete plow, including cylinders and cutting edges should be 1700 lb. to 2000 lb. Heavier plows will be considered, based on special features and engineering evidence that additional weight is needed to provide a desirable strength.
- Attachment** Plow hitch requested will be a State of Utah Universal Quick Hitch or equal. Hitch will be attached to the circle frame in a manor to maintain the circle at or near horizontal positioning when attached to U.D.O.T. truck receiver. The receivers locking pin will be 15" inches to center above ground level. Attaching ears will be designed to protrude 4 in. into the receiver and hook to the pin. Distance between ears is to be 27 ½ inches minimum. The universal quick hitch will be approved at paper pilot review.
- Paint** Paint shall be either Powder coat or Emeron paint and have a minimum of 4 mills of paint. The paint is to have a 2 year warranty. Before painting, the plow shall be sandblasted. If Emeron painted, vendor shall use the paint in accordance with paint manufacture specifications. Paint color to match a 1999 International paint code 0311 Sikkens Omaha Orange

### **Sectional Tungsten Carbide**

**Cutting Edge** The blade shall be flat hot-rolled finished steel SAE 1020 - 1045

Punching shall be 11/16 inch diameter holes, each to be counter sunk to receive a 5/8 inch No. 3 plow bolt.

The groove for the carbide inserts shall be milled as indicated in the drawing (see page 7 of 8).

Center of holes shall be in line within 1/16 inch of the established centerline.

### **Tungsten Carbide Inserts**

The inserts shall be a high shock WC grade of tungsten carbide with 12- ½ to 10 per cent cobalt content.

Density: 14.1 Min. To 14.6 Max.

Hardness: 87.8 Min. 89.0HRA

Transverse Rupture Strength (p.s.i) 350,000 Min.

The carbide insert manufacturer to furnish certification to the Utah Department of Transportation showing that the inserts meet specifications. Also, to certify that the inserts do not contain any reclaimed hard scrap tungsten carbide.

The inserts shall be a rectangular design of the following dimensions:

Height:	3/4 inch
Width:	3/8 inch
Length:	1 inch Nominal

### **Brazing**

Brazed insert with a high strength allow material. The braze shear strength to 30,000 p.s.i. (Minimum).

The tungsten carbide inserts shall be positioned in the milled groove at .010 between inserts the entire length of each cutting edge section.

The inserts shall be brazed on all sides consistent with sound brazing practice with no evidence of voids or use of shims.

Each blade section to contain one insert, one inch nominal length for each inch of blade section length.

### **Cover Blades**

The blade shall be flat square edge, square ends.

Punching shall be standard highway punch at a 1 1/2 inch Gage, with 1 1/16 inch square counter-sunk holes to receive a 5/8 inch plow bolt.

Steel to be high grade, open hearth, basic oxygen or electric furnace steel of the following chemistry.

Carbon	.80 to .93
Manganese	.60 to .90
Sulphur	.50 Max.
Phosphorous	.40 Max.
Silicone	.15 to .30

Mechanical property Brinell hardness 255 to 321.

Blade dimension 3/4 inches x  
72 inches

Center of holes must be in line with 1/16 inch of established centerline.  
Limits and tolerances unless otherwise specified not to exceed 1/16 inch.

### **OPTIONS**

1. One complete circle frame with the push beam assembly. Not including cylinders or springs.

*Option price \$750.00*

2. Supply (30) thirty additional plow rams as per specifications.

*Option price \$140.00*

### **OPTION**

Three year extended warranty covering parts and labor on all items not associated with normal wear or accidents.

*Option price \$400.00*

**OPTION**

A 36 inch moldboard instead of a 41 inch.

*Option price (\$40.00)*

**TRAINING**

The vendor shall provide one day of training on operation and maintenance of snow plows.

**PARTS AND SERVICE**

The servicing and supplying of parts for maintenance should be available in the Salt Lake City area. Consideration of this serviceability will be made before the awarding of a purchase order.

**DELIVERY** see general spec.

Delivery must include the following:

- dealer's invoice
- a copy of warranty
- operator's manual for each unit
- 7 complete sets of manuals including parts list, repair manual, operators manual

Cost of these manuals is to be included in bid price.

Invoices will not be approved for payment until all documentation and manual have been received.

**Reports**

The contractor will submit yearly reports to the State Purchasing Agent (Debbie Gundersen) showing quantities and dollar volume of purchases by each agency and political subdivision. This report will be due by 9/1/99.

FINET COMMODITY CODE(S): **FOR AGENCY USE ONLY**

76561000000-SNOW PLOWS, VEHICLE MOUNTED